Weather and Climate

Yukon-Charley Rivers Spring 2014 Weather Summary

NPS cover photo by Josh Spice

Eagle Spring Weather 2014

In Eagle, March was dry and a little warmer than normal. The average monthly temperature of 8.2° F was 1.0° F warmer than normal. The warmest temperatures of the month (43° F) occurred on March 13th and 15th. There was only one precipitation event in March with 1 inch of snowfall containing 0.06 inches of water recorded March 20-21. Normal snowfall for March is 6.1 inches.

April was remarkably "normal". The average temperature was 28.9° F compared to a normal value of 29.0° F. Precipitation totaled 0.25 inches of water in the form of both rain and snow. Normal April precipitation is 0.26 inches of precipitation. It rained on April 19th and 25th. Snowpack melt-out at the airport occurred on April 27, three days earlier than the long-term mean.

Overall, May was warm and dry. The month started out with an uneventful Yukon River breakup on May 1. A high temperature of 70° F on May 4 broke the old record of 69° F set way back in 1907. Temperatures dropped the third week of the month with a record-breaking minimum of 21° F on May 23. Precipitation was again well-below normal with only 0.23 inches compared to a normal of 1.10 inches for May.

Overall, the average spring temperature at Eagle was 28.6° F which is 1.4° F warmer than the 1981-2010 normal and 1.6° F warmer than the long-term average (1949-2014) (Figure 4). It was a very dry late winter and spring. Only 2.2 inches of snow fell from February 19-May 31. For the spring season, total precipitation was 0.54 inches, only 31% of normal. (see Figures 1 and 2; Table 1, 2, and 3)

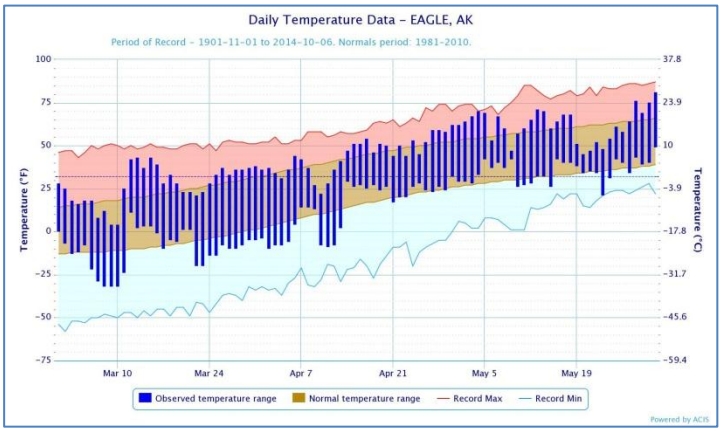

Figure 1. Spring 2014 daily temperatures at Eagle showing record maximum (red), record minimum (blue), normal (brown) and **2014 observed** range (blue bars).

Figure 2. Spring **2014** accumulated precipitation at Eagle (green) compared to **normal** (brown line).

Table 1. Temperature: Spring 2014 average monthly temperatures compared to the 1981-2010 normal.

Spring 2014	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
March	8.2	7.2	+1.0	43 / Mar 13, 15	-32 / Mar 8, 9, 10
April	29.0	28.9	+0.1	62 / Apr 30	-10 / Apr 2
May	48.6	46.1	+2.5	81 / May 31	21 / May 23

Spring Season Temperature Departure from Normal: +1.2°F

Table 2. Precipitation: Spring 2014 monthly precipitation totals compared to normal.

Spring 2014	Total Monthly Precip. in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 hr. total in. / Date	# Days with >=0.01 in. water
March	0.06	0.38	-0.32	0.03 / Mar 20, 21	2
April	0.25	0.26	-0.01	0.09 / Apr 19	4
May	0.23	1.10	-0.77	0.13 / May 18	3

Spring Season Departure from Normal: -1.2 inches (31% of normal)

Table 3. Snowfall: Spring 2014 monthly snowfall totals compared to normal.

Spring 2014	Total Monthly Snowfall in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 hr. snowfall total in. / Date	Cumulative snowfall since 1-July in.	Snow Depth at end of month
March	1.0	6.1	-5.1	0.5 / Mar 20, 21	58.5	16
April	1.2	3.1	-2.9	0.7 / Apr 8	59.7	0
May	0	1	-1.0	---	59.7	0

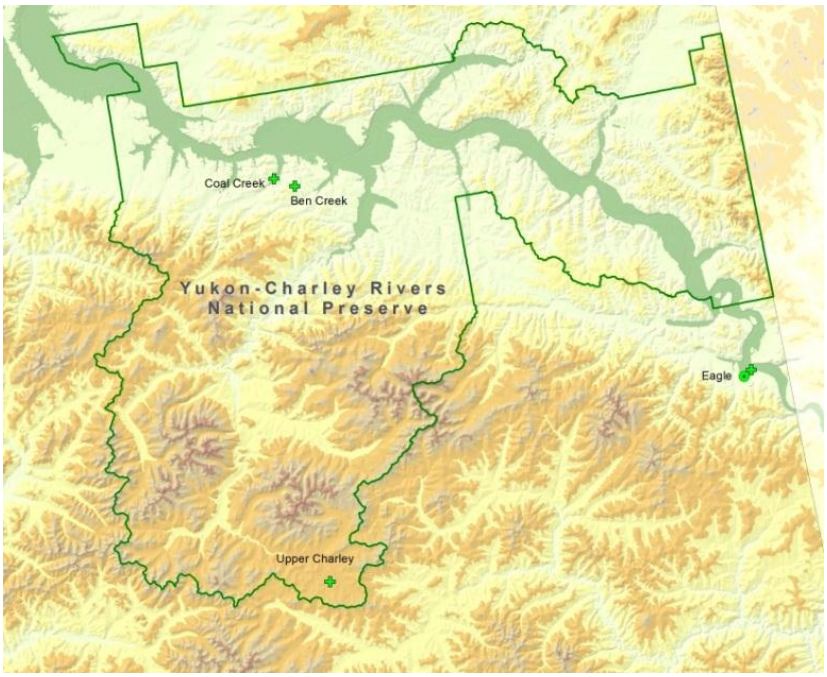

Figure 3. NPS Climate stations in Yukon-Charley Rivers National Park and Preserve.

Table 4. Summary of weather statistics from the YUCH climate stations.

Site	Elev. (ft)	Average Temp (°F)			Spring Avg. Temp (°F)	Extremes (°F)		Peak Wind (mph)	High T – Low T (°F)
		March	April	May		High	Low		
Ben Creek	1850	M	30.6	48.6	33.1	74	-12	28	86
Coal Creek	870	7.4	30.0	48.1	28.5	73	-35	12	108
Upper Charley	3654	10.9	26.8	40.6	26.1	60	-24	30	84

Interesting notes from RAWS stations:

- The average April temperature at Upper Charley was 12.3° F in 2013; this year it was 26.8°F.

- The low elevation Coal Creek station had the largest temperature swing for the spring season, with a low of -35° F on March 10 and a high of 73° F on May 30.

- Melt-out at Upper Charley occurred on May 7. At Coal Creek, melt-out occurred on April 29.

Climate Monitoring in Yukon-Charley Rivers National Park and Preserve

The NPS climate stations in Yukon-Charley Rivers are approaching the 10-year mark for climate monitoring. The stations complement long-term records available from the National Weather Service station in Eagle. The Upper Charley station is providing critical high elevation data which helps characterize climate gradients and patterns affecting resources in Yukon-Charley Rivers National Preserve. Table 4 summarizes the spring weather data for NPS sites.

We have added a phenology camera to the Upper Charley climate station. The camera capture images four times per day; the images are downloaded once a year. The images are used to help quantify the snow season, green-up period, and other basic phenologic information.

Eagle Spring Temperature Trend

The average spring temperature for 2014 was 28.6° F, which is 1.2° F warmer than the 1981-2010 normal (the latest climate normal period) and 1.6° F degrees warmer than the long-term average (1949-2014). We calculate the average spring temperature by simply taking the average of March, April, and May monthly temperatures. Average spring temperatures show great variability with a range between 18.4°F in 1964 and 33.4° F in 2005. There is not a significant trend in spring temperatures over the period of record. The 10-year moving average shows the warmest period in the late 1990s. The spring period over the past ten years has been near the long-term average. (Figure 4)

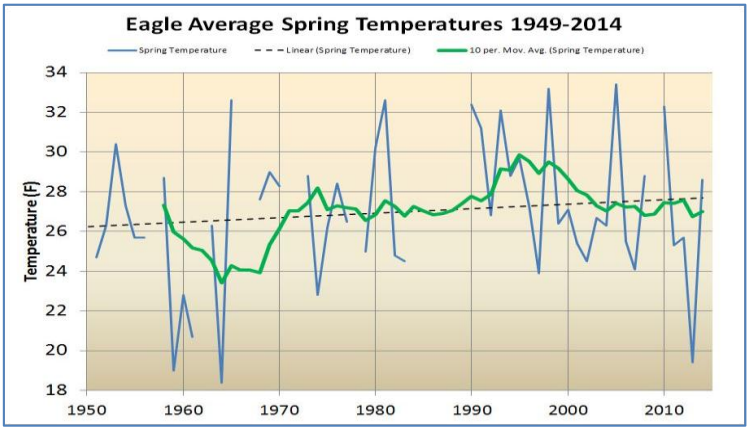

Figure 4. Average spring temperatures in Eagle since 1949. Green line is a 10-year moving average. Dashed line is a simple linear regression trend.

Connecting Further

- New paper published – Recent Sea Ice Increase and Temperature Decrease in the Bering Sea area, Alaska
- Previous weather summaries and other climate monitoring documents on the Central Network web portal
- Access near real-time data from Western Regional Climate Center and MesoWest
- Statewide summary of weather highlights in the latest Alaska Climate Dispatch from the Alaska Center for Climate Assessment and Policy
- Map of projected temperature and precipitation changes for Yukon-Charley Rivers National Park and Preserve.

More Information

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